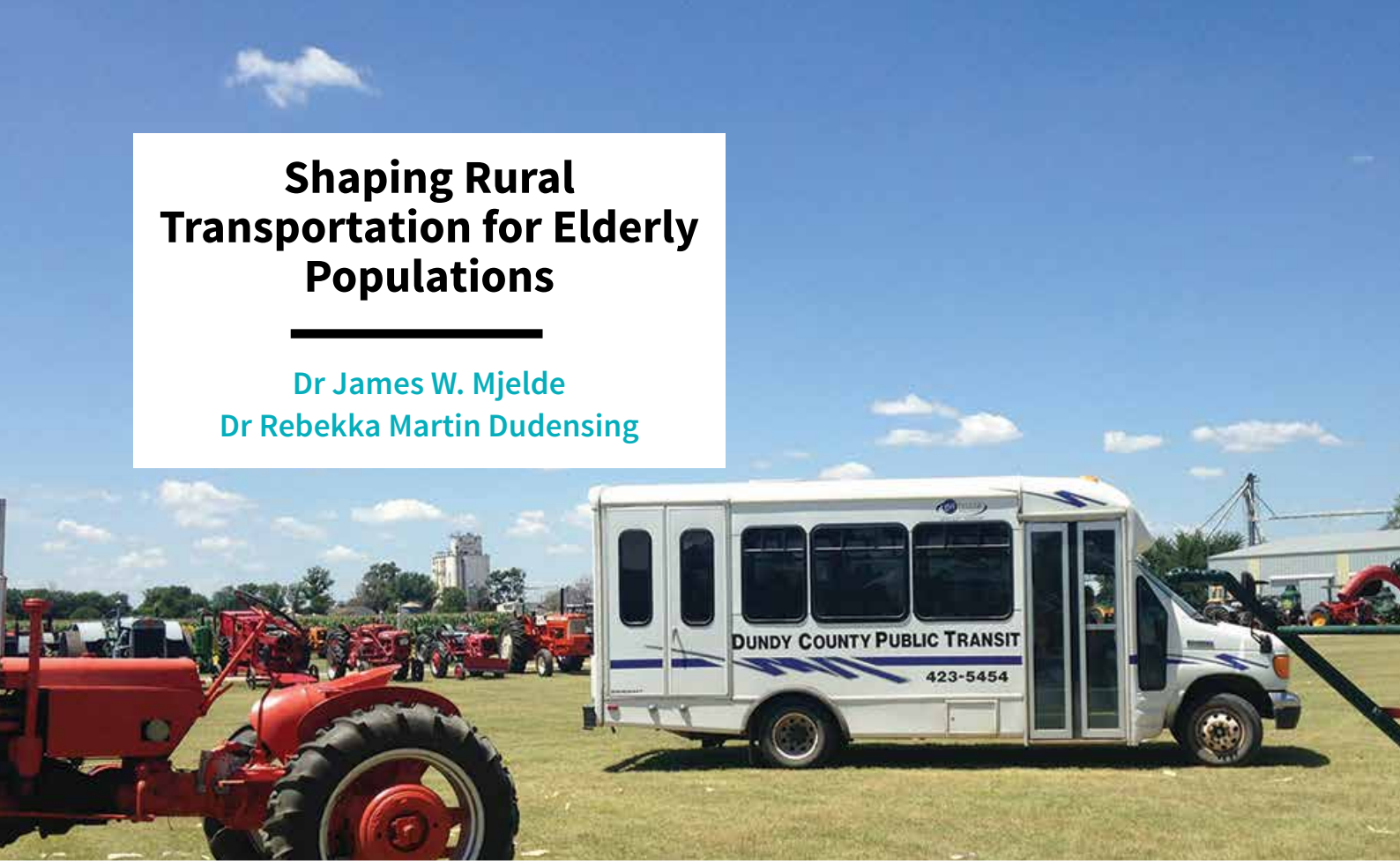
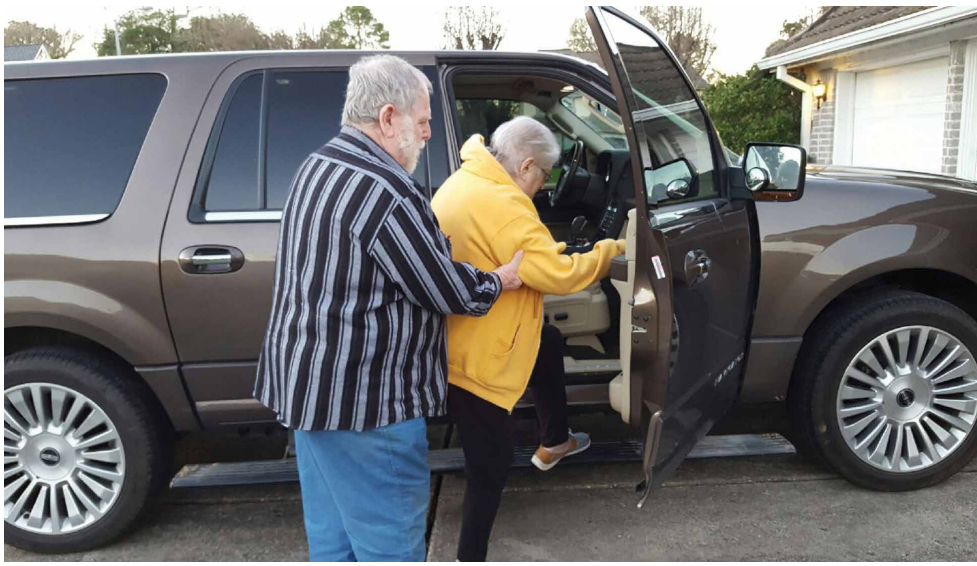
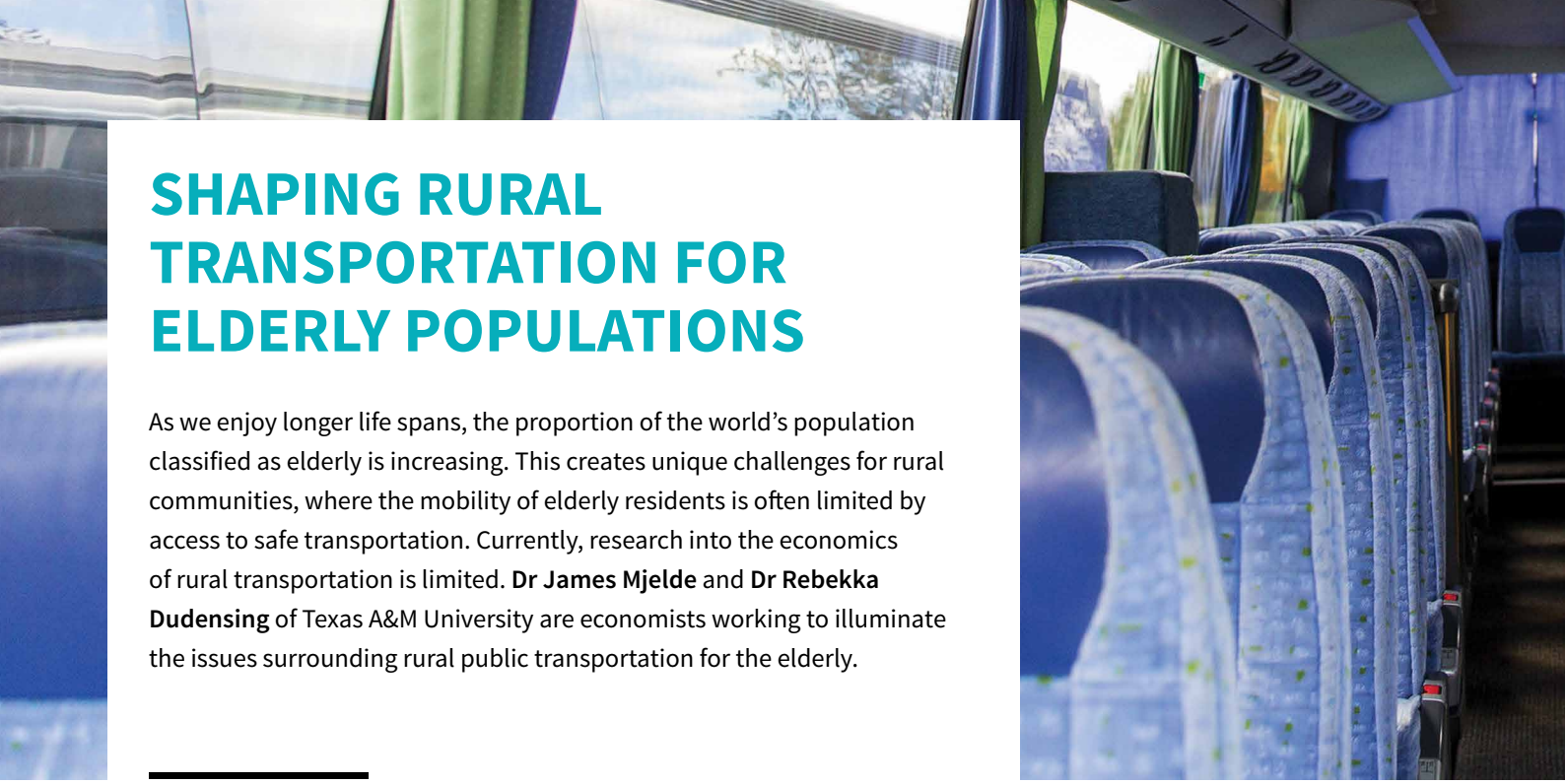
Shaping Rural Transportation for Elderly Populations

Dr James W. Mjelde
Dr Rebekka Martin Dudensing







SHAPING RURAL TRANSPORTATION FOR ELDERLY POPULATIONS

As we enjoy longer life spans, the proportion of the world's population classified as elderly is increasing. This creates unique challenges for rural communities, where the mobility of elderly residents is often limited by access to safe transportation. Currently, research into the economics of rural transportation is limited. **Dr James Mjelde** and **Dr Rebekka Dudensing** of Texas A&M University are economists working to illuminate the issues surrounding rural public transportation for the elderly.

As the large baby boomer generation of the United States ages, society is shifting social services to match the needs of the population. The number of elderly people living in rural areas is growing, where the public transit infrastructure they need is often lacking. Solving this problem requires interdisciplinary collaboration between researchers from multiple areas of social and applied sciences. In October of 2016, Dr James Mjelde and Dr Rebekka Dudensing of Texas A&M University, along with Texas A&M Transportation Institute colleague Jonathan Brooks, assembled a group of researchers and experts at the National Conference on Rural Public and Intercity Bus Transportation (RIBTC). The resulting white paper focuses on the economic issues surrounding public transportation in rural areas, along with technological alternatives and areas where more research needs to be conducted.

An Aging Rural Population

The United States, along with the rest of the world, is currently experiencing an increase in the proportion of elderly individuals in the population. With the advent of healthier lifestyles and advances in medical care, life expectancies for both men and women is on the rise worldwide. In the 2010 U.S. census, approximately 13% of the population (just over 40 million people) were over the age of 65, a number that is expected to increase to nearly 20% over the next decade as baby boomers continue to age while living longer, healthier lives. While this generation is staying healthier longer than past generations, they still are subject to the common problems of old age, such as loss of mobility and cognitive function, and require greater access to healthcare and social services. In particular, elderly members of disadvantaged and low income groups need access to healthcare, business services, and social interaction.

Roughly 83% of the land area of the United States is characterised as rural, sparsely populated areas. Populations of elderly Americans located in rural areas are increasing, due to many factors. Some American baby boomers move to a rural area from an urban one in retirement, and those moving to rural areas late in life tend to be financially sound. Those that have already established homes in rural areas earlier in life are less likely to leave, but are more likely to be lower income. Many rural areas also see an outmigration of young people, because of a lack of career and educational opportunities in most rural towns. People living in rural areas are more likely to be elderly, disabled, lower income, and/or from disadvantaged populations than those in metropolitan cities. There is often a greater need for access to health care and social services among these demographics, but these amenities are often more difficult to come by in rural areas.

Mobility and Quality of Life

Mobility is strongly linked with our quality of life. Easy access to employment, grocery shopping, healthcare appointments, recreation, and entertainment can be a major factor contributing to comfort and satisfaction throughout life. While these amenities are often abundant in urban areas, in rural areas there are typically fewer options that are located further from residents. To compound this issue, there are often fewer transportation options in rural areas. Thus, accessibility, the number of amenities at a given distance, and the availability and quality of transportation networks, are often limited in sparsely

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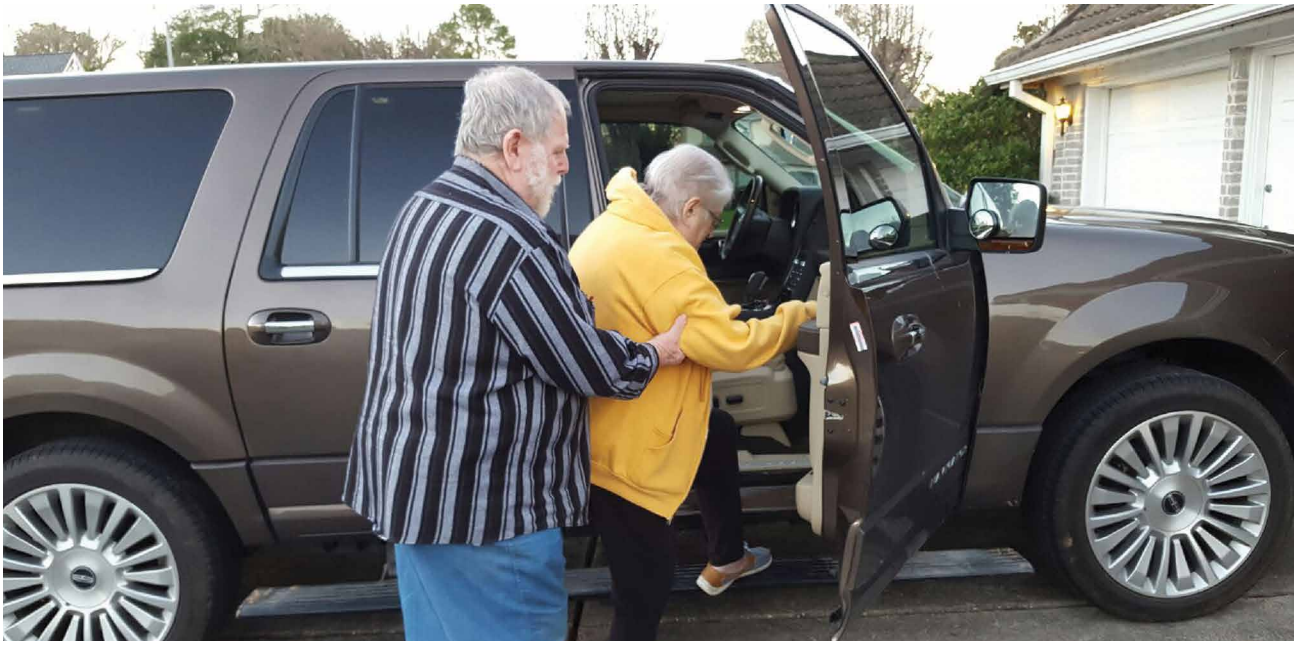

populated areas. When both mobility and accessibility of essential services are limited, it can put elderly individuals’ quality of life at risk.

The most common mode of transportation for elderly people in the United States is the personal vehicle, where often the convenience outweighs the potential costs, both financial and in terms of safety risks. A study in 2005 estimated that nearly 92% of recent trips taken by elderly people had been made by automobile. However, as people age, many factors decrease their ability to drive. The American Association of Retired Persons (AARP) estimates that on average, men usually live 7 years beyond driving comfortably, while women usually outlive their driving years by 10 years.

Individuals often give up driving for safety reasons related to cognitive and health problems. Elderly people that are still driving often start limiting their driving to avoid certain conditions, such as in the dark, in poor weather, at heavy traffic times, on highways, and on unfamiliar routes. When old age begins to limit or end a person’s driving years, they become much more reliant upon friends, family, and public transportation, and may require additional human assistance to use transportation of any kind (such as help getting in and out of a vehicle). However, family may not be nearby or available during work hours, and friends tend to be of a similar age, which may limit their driving ability as well. Mobility typically begins to drop at age 65 and the drop is even more pronounced for the rural poor. ‘As people are living longer, transportation becomes even more paramount,’ Dr Mjelde summarises.

Problems in Rural Transportation

Public transportation is often limited and difficult to access in rural communities. However, due to the growing elderly population in rural areas, the demand for access to transportation beyond personal vehicles is greater than ever before. Improving the availability and use of these services requires targeted research, but transportation data specific to rural areas is currently limited. ‘When we started looking at the literature, there was a lack of good economic studies on rural transportation for the elderly,’ Dr Mjelde explains.

There are numerous studies of urban transport, and that research is often broadly applicable, as the transportation problems in cities tend to be similar nationwide. However, unlike cities with metropolitan transit organisations, the party responsible for providing transportation in a rural area is often not well defined and varies by region. Responsibility may fall on the state, a rural planning organisation, or local government. Rural areas also vary dramatically in geography, infrastructure, and population distribution, making understanding the needs and best practices in rural settings a much more complicated endeavour. Many of the present studies in rural transportation are limited in their scope and applicability, and have not included experts from across the spectrum.

Dr Mjelde and Dr Dudensing recognise that collaboration between transportation researchers, economists, sociologists, and service providers is necessary to help facilitate positive practices and innovations in rural transportation. ‘We recognised the need to help the elderly, brought forth by living in rural communities and having personal experience with family and friends aging and struggling with transportation,’ Dr Mjelde describes. As resource and community development economists, respectively, Drs Mjelde and Dudensing posit that understanding the economic variables that determine not only if a transportation system is financially viable for a community, but if anyone will use it, can have meaningful

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impacts on how rural communities handle transportation puzzles.

They organised a meeting of economists interested in rural transportation at the RIBTC to interact with transit planners and providers and develop a plan for addressing the problems of rural transportation. Conference participants were given surveys so they could offer their stance on many transportation issues, and Drs Mjelde and Dudensing worked with their colleagues to illuminate the best path forward in recommending economic research needed to develop effective transportation solutions.

Feedback and the Future of Rural Transportation

The RIBTC survey revealed that most respondents were concerned with rural transportation for the elderly and disadvantaged and expected these needs to rise in the next decade. They felt that public money should help fund this endeavour, but also expressed a willingness to pay a reasonable fee for services used. Most were unsure of how technological advances could help alleviate the situation.

Taking these responses into consideration, Dr Mjelde, Dr Dudensing and their colleagues formed research recommendations for the USDA and other agencies to consider. They agreed that research must be focused in five general areas: theoretical issues, innovative solutions, rural socioeconomic considerations, economic assessment and evaluation of rural transit, and information technology solutions. Research on theoretical issues underlying the economics of rural transit is lacking and could provide frameworks for each of the other areas. Innovative solutions, such as self-driving cars or self-correcting driving technologies, could help to alleviate some of the transportation issues that limit elderly people’s ability to drive and transport themselves, although some riders may need passenger assistance and others simply benefit from the interaction with their driver. Other innovative solutions, such as ride-sharing and volunteer networks also show potential.

Studying rural socioeconomic considerations helps policy makers hone in on how public transportation options affect the community as a whole. Translating the individual needs of community residents into a comprehensive understanding of broad reaching issues, such as liveability and sustainability of the community, is necessary to assess the broad need for transportation services. It is critical that rural communities with limited funds have appropriate economic assessments and evaluations of transit options, to understand if the benefits outweigh the costs to communities with limited funding. Little research in this area currently exists, and much of what has been done has followed questionable economic and social assumptions that could lead policy makers down the wrong path. Finally, pursuing information technology solutions with the potential to transform rural transit could dramatically improve both quality of service and reduce unnecessary costs. These solutions can help streamline the management of rural transportation systems, and help to ensure that vehicles are only being deployed if and when they will be used, reducing costs.

Rural transportation systems have not received the same research attention as urban networks, but through collaboration and innovation, Drs Mjelde and Dudensing are hoping to change that. The need for these services is expected to continue to grow over the next decade, and without a proactive search for solutions, rural communities could find themselves facing difficult problems as aging populations lose access to vital services. By following the recommendations of the RIBTC committee on rural elderly transit, they hope that communities will be able to make better informed decisions that benefit their residents and improve quality of life for everyone. As Dr Dudensing describes, ‘With this work, we are providing USDA and other agencies with guidance on economic issues associated with rural transportation for the elderly. Rural transportation providers are looking at innovative solutions.’

Meet the researchers

Dr James W. Mjelde
Department of Agricultural Economics
Texas A&M University
College Station, Texas
USA

Dr James W. Mjelde completed his Bachelor's degree in Fish and Wildlife Management and his Master's degree in Applied Economics at Montana State University. He went on to receive his PhD in Agricultural Economics from the University of Illinois in 1985. He has served in his current position as Professor of Agricultural Economics at Texas A&M University since 1985, during which he has mentored over 40 graduate students, and received numerous prestigious awards for his research in economics and excellence in teaching. He is a fellow of the Western Agricultural Economics Association and specialises in dynamic modelling of resource economics and economics of information.

CONTACT

E: j-mjelde@tamu.edu
T: (+1) 979 845 1492
W: http://agecon.tamu.edu/faculty-staff/faculty/mjelde-james/

Dr Rebekka Martin Dudensing
Department of Agricultural Economics
Texas A&M University
College Station, Texas
USA

Dr Rebekka Martin Dudensing began her collegiate studies at Kansas State University studying Agriculture, and went on to receive a Master's in Agriculture & Applied Economics from Texas Tech University. She was awarded a PhD in Applied Economics from Clemson University in 2008, after which she joined the faculty at Texas A&M University, where she enjoys an appointment as Associate Professor in the Department of Agricultural Economics and Extension Economist with the Texas A&M AgriLife Extension Service. She specialises in rural and regional economic planning and the application of economic models to region-specific characteristics.

CONTACT

E: rmdudensing@tamu.edu
T: (+1) 979 845 1719
W: http://ruralcommunities.tamu.edu

KEY COLLABORATORS

Geoffrey Battista, McGill University
Jonathan Brooks, Texas A&M Transportation Institute
Maria Carrillo, Washington State University
Blane Counsil, Texas A&M University
Dr Anil Giri, University of Central Missouri
Dr Man-Keun Kim, Utah State University
Dr V. Dimitra Pyrialakou, West Virginia University
Dr Stan Ullerich, Buena Vista University

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